STATEMENT OF WORK
FOR A REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
AT THE SOUTH DAYTON DUMP AND LANDFILL SITE
MORAINE, OHIO

PURPOSE:

This Statement of Work (SOW) sets forth the requirements for conducting a Remedial Investigation and Feasibility Study (RI/FS) at the 80-acre South Dayton Dump and Landfill Site located at 1975 Dryden Road in Moraine, Ohio (Figure 1). Based on an historical air photo analysis, handwritten notes on an undated tax map from the Montgomery County Combined Health Department, drum removal activities and a title search, the South Dayton Dump and Landfill Site property currently includes: 1) Lot 5054 (Valley Asphalt); 2) Lots 5171, 5172, 5173, 5174, 5175, 5176, 5177 and 5178 (Boesch and Grillot Plat); 3) Lot 3274 (Miami Conservancy District); 3) Lots 3753 and 4423 (Jim City Salvage); and 4) Lots 4610 and 3252 (Ronald Barnett) (Figure 2). The limit of landfilling of municipal and industrial waste, based on subsequent assessment of aerial photographs is in a smaller area, shown on Figure 2.3 in Appendix A.

The RI shall evaluate the nature and extent of hazardous substances or contaminants at the property and in any off-property areas where hazardous substances or contaminants from the property or from past operations at the property have or may have come to be located ("the Site"). The RI shall also assess the risk which these hazardous substances or contaminants present for human health and the environment. The FS Report shall evaluate alternatives for addressing the impact to human health and the environment from hazardous substances or contaminants at the Site.

The RI/FS shall comply with all requirements and guidance for RI/FS studies and reports, and shall also comply with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), Final Rule (40 CFR Part 300). At a minimum, the Respondents shall prepare and complete the RI and FS Reports consistent with the *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (EPA/540/G-89/004, October 1988) (RI/FS Guidance), *Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites* (EPA/540/P-91/001, February 1991), (Municipal Landfill Guidance) *Presumptive Remedy for CERCLA Municipal Landfill Sites*, (EPA/540/F-93/035, September 1993) (Presumptive Remedy Guidance), and any other relevant guidance that the United States Environmental Protection Agency (U.S. EPA) uses in conducting or submitting deliverables for a RI/FS, as well as any additional requirements in the Administrative Order on Consent (AOC). The RI/FS Guidance describes the report format and the required report content. Numerical references to the appropriate sections of the RI/FS Guidance follow the section headings throughout this SOW. U.S. EPA will provide any

guidance, evolving or published during the conduct of the RI/FS, to the Respondents in a reasonable time frame prior to the due date for the submittal of applicable interim or final deliverables identified in this SOW. A partial list of guidance is included at the end of this SOW.

The Respondents shall submit all documents or deliverables required as part of this SOW to U.S. EPA, with a copy to the Ohio Environmental Protection Agency (Ohio EPA), for review and approval by U.S. EPA after consultation with the Ohio EPA.

Unless otherwise agreed to by U.S. EPA, the Respondents shall submit 4 paper copies of each deliverable to U.S. EPA and one paper copy of each deliverable to U.S. EPA's oversight contractor. Unless otherwise agreed to by U.S. EPA, the Respondents shall also submit electronic copies of each deliverable to U.S. EPA on compact disk in file formats compatible with MS Word and MS Excel, and one electronic copy of each deliverable in .pdf format. Files submitted in .pdf format shall not exceed 10MB in size.

The Respondents shall furnish all personnel, materials, and services necessary for, or incidental to, performing the RI/FS at the Site, except as otherwise specified herein.

At the completion of the RI/FS, U.S. EPA will be responsible for selecting a Site remedy, and will document the selected remedy in a Record of Decision (ROD). The remedial action selected by U.S. EPA will meet the cleanup standards specified in CERCLA Section 121. That is, the selected remedial action will protect human health and the environment; will comply with, or include a waiver of, applicable or relevant and appropriate requirements of other laws; will be cost-effective; will use permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and will address the statutory preference for treatment as a principal element. The final RI/FS Reports, as adopted by U.S. EPA, shall, with the administrative record, form the basis for the selection of the Site remedy and shall provide the information necessary to support the development of the ROD.

As specified in CERCLA Section 104(a)(1), as amended by SARA, U.S. EPA and Ohio EPA will provide oversight of the Respondents' activities throughout the RI/FS, including all field sampling activities. The Respondents shall support U.S. EPA's and Ohio EPA's initiation and conduct of activities related to the implementation of oversight activities.

SCOPE:

The tasks Respondents shall complete as part of this RI/FS are:

Task 1: Project Scoping and RI/FS Planning Documents
Task 2: Community Relations
Task 3: Site Characterization
Task 4: Remedial Investigation Report

Task 5: Treatability Studies
Task 6: Development and Screening of Alternatives (Technical Memorandum)
Task 7: Detailed Analysis of Alternatives (FS Report)
Task 8: Progress Reports

TASK 1: PROJECT SCOPING AND RI/FS PLANNING DOCUMENTS

Scoping is the initial planning process of the RI/FS and is initiated by U.S. EPA prior to issuing special notice. During this time, the Site-specific objectives of the RI/FS, including the preliminary remedial action objectives, are determined by U.S. EPA. Scoping is initiated prior to negotiations between the PRPs and U.S. EPA, and is continued, repeated as necessary, and refined throughout the RI/FS process. In addition to developing the Site-specific objectives of the RI/FS, U.S. EPA will determine a general management approach for the Site.

Consistent with the general management approach, the Respondents and U.S. EPA will plan the specific project scope. The Respondents shall document the specific project scope in the RI/FS Planning Documents. Because the work required to perform a RI/FS is not fully known at the onset, and is phased according to a Site's complexity and the amount of available information, it may be necessary to modify the Planning Documents during the RI/FS to satisfy the objectives of the study.

The preliminary objectives for the remedial action at the Site, based on currently available information [see Chapter 4 of *Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites* (EPA/540/P-91/001, February 1991) and Section 1.2 of *Presumptive Response Strategy and Ex-Situ Treatment Technologies for Contaminated Groundwater at CERCLA Sites* (EPA 540-R-96-023, October 1996)] are:

- Prevent direct contact with landfill contents;
- Minimize infiltration and resulting contaminant leaching to groundwater;
- Control surface water runoff and erosion;
- Treat, eliminate, or contain high levels of hazardous substances, pollutants, or contaminants (hot spots) if they are having an impact on groundwater quality that results in an unacceptable risk to human health;
- Collect and treat contaminated groundwater and leachate if necessary to contain the contaminant plume and prevent further migration from the source area;
- Control and treat if necessary landfill gas and soil vapors if the landfill gas and vapors pose a human health or safety concern;

- Prevent exposure to contaminated groundwater above acceptable risk levels;

- Prevent or minimize further migration of the groundwater contaminant plume and actual or potential impacts to drinking water supplies and/or ecosystems (e.g., groundwater impacts to surface water, sediments, organisms and/or the food chain);

- Return the groundwater to its expected beneficial uses wherever practicable within a reasonable time frame for the site;

- Remediate contaminated surface water and sediments that exist on Site;

- Remediate contaminated wetland areas if impacted at concentrations that pose demonstratable threat to the wetland ecology;

- Mitigate or abate other situations or factors that may pose a threat to public health, welfare, or the environment.

The strategy for achieving the remedial objectives and for the general management of the site will include the following. The Respondents shall:

- Conduct a remedial investigation to:
  - define the extent of landfilled waste;
  - characterize contaminant migration beyond the limits of the waste in leachate, soil, soil gas/landfill gas, and groundwater; and
  - characterize the geology and hydrogeology at the Site sufficiently to characterize the extent of contaminant migration and support the completion of a human health and ecological risk assessment for the Site.

- fully determine the nature and extent of the release or threatened release of hazardous substances, pollutants, or contaminants beyond the landfill area the Site. In performing this investigation, the Respondents shall gather sufficient data, samples, and other information to fully characterize the nature and extent of the contamination beyond the landfill area at the Site and to support the human health and ecological risk assessments conducted for this Site.

- Perform a feasibility study using a range of alternatives and analyses that are consistent with the Presumptive Remedy Guidance to identify and evaluate alternatives for the appropriate extent of remedial action to prevent or mitigate the migration or the release or threatened release of hazardous substances, pollutants, or contaminants from the Site. The feasibility study will also include a range of alternatives for the extent of contamination beyond the landfill area that is consistent with the Municipal Landfill Guidance.

- If the remedial investigation reveals contamination in specific, identifiable areas of concern which may present an imminent and substantial endangerment to human health or the environment (e.g., groundwater vapors to homes along East River Road), the Respondents may propose or U.S. EPA may require an interim response action to address the threat identified. The Respondents may propose, subject to U.S. EPA review, comment and approval, with modifications if necessary, interim response actions that, if implemented, will protect human health and the environment and may contribute to the effectiveness of the remedial action eventually selected for this Site.

When scoping the specific aspects of the project, the Respondents shall meet with U.S. EPA to discuss all project planning decisions and special concerns associated with the Site. The Respondents shall perform the following activities as a function of the project planning process.

1.1. Site Background (RI/FS Guidance Section 2.2)

The Respondents gathered and analyzed the existing Site background information and conducted a Site visit to assist in planning the scope of the RI/FS.

1.1.1 *Collect and Analyze Existing Data* (RI/FS Guidance Section 2.2.2)

The Respondents have compiled and reviewed all existing Site data. The Scoping Report documents this review and is presented in Appendix A. The Respondents have used this information to determine the additional data needed to characterize the site and evaluate risks, better define potential applicable or relevant and appropriate requirements (ARARs), and develop a range of preliminarily identified remedial alternatives. Table 1 presents a summary of potential federal ARARs. Table 2 presents a range of preliminarily identified remedial alternatives. Table 3 presents the Data Quality Objectives (DQOs) which specify the usefulness of existing data.

1.1.2 *Conduct Site Visit*

The Respondents have visited the Site during the project scoping phase to develop a better understanding of the Site, and focus on the sources and the areas of contamination, as well as potential exposure pathways and receptors at the Site. During the Site visit, the Respondents observed, to the extent possible, the site's physiography, hydrology, geology, and demographics, as well as natural resource, ecological and cultural features. The Respondents have used this information to better scope the project, to determine the extent of additional data necessary to characterize the Site, to evaluate risks, better define potential ARARs, and narrow the range of preliminarily identified remedial alternatives.

1.2 Project Planning (RI/FS Guidance Section 2.2)

Once the Respondents have collected and analyzed existing data and conducted a Site visit, the Respondents shall plan the specific project scope. Project planning activities include those tasks described below as well as identifying data needs, developing a work plan, designing a data collection program and a quality assurance plan, and identifying health and safety protocols. These tasks are described in Section 1.3 of this Task since they may result in the development of specific required deliverables.

1.2.1 *Identify Data Needs and Design a Data Collection Program* (RI/FS Guidance Sections 2.2.6, 2.2.7, 3.2.2, 3.2.3, 3.2.4 and 3.2.5)

The Respondents have analyze the currently available data and information and prepare a site conceptual model, which is presented on Figures 3 and 4. Based on the currently available data and information and the site conceptual model, the Respondents shall determine which areas of the Site and other nearby areas require additional data and/or evaluation to characterize site conditions, define the extent of hazardous substances or contaminants at the Site, support modeling efforts, evaluate risks to human health and the environment, and develop and evaluate remedial alternatives. (Two data gaps are that most of the existing groundwater monitoring wells are screened 5 to 10 or more feet below the water table, and vertical contaminant profiling was not conducted).

The Respondents have scoped a data collection program that includes, but is not limited to, the activities listed below. The scope of the data collection program is presented in Table 4 and is described more fully below.

The Respondents shall design the data collection program consistent with Sections 3.2.2, 3.2.3, 3.2.4 and 3.2.5 of the RI/FS Guidance; U.S. EPA's *Risk Assessment Guidance for Superfund (RAGS) Volume I - Human Health Evaluation Manual Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments* (Final, EPA 540-R-97-033, OSWER 9285.7-01D, December 2001); *Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites* (EPA/540/P-91/001, February 1991); and any other applicable guidance. The Respondents shall incorporate the sampling results into the Site Characterization Technical Memorandum (Task 3.1), the Remedial Investigation Report (Task 4), the Human Health and Ecological Risk Assessments (Tasks 3.2 and 3.3) and the Feasibility Study (Task 7). Where modeling or screening is appropriate, the Respondents shall identify such models or screening methods to U.S. EPA in the Planning Documents (Task 1.3) or in technical memoranda prior to their use. The Planning Documents or technical memoranda shall justify the basis and technical appropriateness for using the proposed model(s) or screening methods, and, for modeling efforts, shall include a detailed description of the data that is needed and that is either available or that the Respondents shall collect to support the modeling. The Respondents shall provide all modeling inputs and outputs to U.S. EPA with a sensitivity analysis. If requested, the

Respondents shall also provide U.S. EPA with the programming used in the modeling, including any proprietary programs.

1.2.1.1 Waste Area Delineation

The RI shall include an investigation to determine the areal extent of waste landfilled at the Site and the types of waste disposed. The RI shall also include geophysical analyses to investigate the extent of drum buriel at the north end of the Site, including a portion of the Valley Asphalt property where drums have previously been excavated as part of a sewer construction project in 2000.

The Respondents shall complete a Site survey to establish the limits of waste on a surveyed base map. The Respondents shall use methods such as test pits, trenches and/or soil borings to determine waste depths, thicknesses and volume; the elevation of the underlying natural soil layer; and the extent of cover over fill areas and hazardous substances or contaminants when such information is not already known. The RI shall include geophysical characterization methods, such as ground penetrating radar, magnetometry or tomography to further delineate landfill limits The RI shall also include a characterization of the shallow groundwater at the downgradient edge of the landfilled wasgte to assess the significance of potential leaching of constituents from the waste materials to the environment.

1.2.1.2 Surface and Subsurface Soils Investigation

The RI shall include an investigation to determine the extent of hazardous substances or contaminants in surface and subsurface soils outside of the limits of landfilled waste at the Site. and to identify and characterize any hot spots. This includes areas where airborne hazardous substances or contaminants may have been deposited as a result of open burning or burning in the air curtain destructor. The RI shall include assess groundwater quality to evaluate investigations to determine the leachability of Site hazardous substances or contaminants into the groundwater. The RI shall include the collection of background soil samples for use in determining whether any hazardous substances or contaminants detected in Site soil are related to local and/or regional background conditions. These investigations may include an assessment of activities on adjacent properties that may have impacted soil and/or groundwater that are not associated with the landfill.

1.2.1.3 Leachate Investigation

The RI shall include a leachate investigation to determine if the highest seasonal water table intersects the waste material and whether there is leachate within the fill, even if the wastes are above the water table. The Respondents shall define surface water drainage patterns; calculate a water balance; determine soil, climatological and waste

characteristics; and determine the depth to groundwater and groundwater flow direction and velocity. The leachate investigation shall include the collection of direct soil solute samples (e.g., using lysimeters or other methods) for chemical analysis if the leachate investigation shows that the landfilled material is having an impact on groundwater quality that results in an jnacceptable risk to human health. The Respondents shall use the results of the leachate investigation determine if leachate collection is required under the presumptive remedy and to to assist in identifying and characterizing any hot spots and to determine contaminant fate and transport.

1.2.1.4. Hydrogeologic Investigation

The RI shall include investigative tasks to determine the degree of groundwater hazards; the mobility and fate and transport of groundwater pollutants; discharge and recharge areas; regional and local groundwater flow direction and quality; the local uses of groundwater including the number, location, depth, and use of nearby private and municipal wells; and current and potential future impacts to any and all private and municipal wells from groundwater migration at the Site and to surface water and sediment in the Great Miami River, and the large water-filled gravel pit in the southwest area of the Site. The Respondents shall develop a strategy to determine the horizontal and vertical distribution of hazardous substances or contaminants in the groundwater outside of the limits of landfilled waste and the extent and fate and transport of any groundwater plume(s) containing hazardous substances or contaminants. The RI shall also include other hydraulic tests such as slug tests, pumping tests and grain size analyses to assist in evaluating contaminant fate and transport and in developing potential remediation options. The RI shall include upgradient (background) groundwater samples and, if directed by U.S. EPA, samples from private and municipal wells. Where modeling is appropriate, the Respondents shall identify such models to U.S. EPA in a technical memorandum prior to their use. The Respondents shall support any discussions or evaluations of monitored natural attenuation with data collected consistent with the methods and protocols in the U.S. EPA *Region 5 Framework for Monitored Natural Attenuation Decisions for Groundwater* (September 2000).

1.2.1.5 Surface Water, and Sediment Investigation

The RI shall include an investigation to determine the impacts from the Site on sediments in the large water-filled gravel pit in the southwest area of the Site; surface water and sediments in the large depression area in the west-central area of the Site if water is present in this area at the time of sampling; and any other creeks and/or wetlands that are or may be impacted by the Site. The RI shall include the collection of background surface water, and sediment samples for use in determining whether any hazardous substances or contaminants detected in surface water, or sediment are related to local and/or regional background conditions. If the leachate investigation (1.2.1.3 above) or investigations of groundwater impact, surface water runoff, or other components of the RI indicate an impact by leachate through seeps or other means to

the adjacent Great Miami River, then this surface water and sediment investigation shall be expanded to include the surface water, sediment, and floodplain of the Great Miami River.

1.2.1.6 Landfill/Soil Gas and Air Investigation

The RI shall include landfill/soil gas surveys for the areas on and around the fill areas of the Site and above areas where vapors may migrate from groundwater, including areas where homes are located (e.g., along East River Road east/south of the site). Based upon the scoping report in Appendix A, this investigation shall focus on the areas where municipal waste was landfilled and where receptors area near these locations. The RI shall also include an investigation to determine the extent of atmospheric hazardous substances or contaminants from the various potential source areas at the Site. The investigation shall determine subsurface migration patterns and address the tendency of the substances identified through the waste characterization and other media sampling to enter the atmosphere. The investigation shall determine local wind patterns; the potential explosive hazards; and the degree of hazard posed by the direct inhalation of hazardous substances or contaminants in the air and through gas migration and vapor intrusion into structures (existing and future). The Respondents shall also use the results of the landfill/soil gas and air investigation to assist in identifying and characterizing any hot spots beyond the limits of the landfilled waste.

1.2.1.7 Ecological Investigation

The RI shall include an ecological investigation to assess the impact to aquatic and terrestrial ecosystems within and adjacent to the Site as a result of the release, and migration of hazardous substances or contaminants. These ecosystems include the large water-filled gravel pit in the southwest area of the Site, and any other creeks and/or wetlands that are or may be impacted by the Site. The RI shall include a description of the habitats and the ecosystems affected; an evaluation of toxicity; an assessment of endpoint organisms; the exposure pathways; an evaluation of potential ecological risk; the relevant exposure pathways; and an assessment of ecological concerns. The RI shall also include additional field work (e.g., toxicity testing, biological surveys, bioaccumulation collections, etc.) needed to support the assessment. The Respondents shall conduct the ecological investigation and assessment in accordance with U.S. EPA guidance, including *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (June 5, 1997; EPA 540-R-97-006) and the Presumptive Remedy Guidance.

If the results of the leachate investigation or investigations of groundwater impact, surface water runoff, or other components of the RI indicate an ongoing impact to the Great Miami River, the ecological evaluation shall be expanced to include the Great Miami River and its floodplain in the vicinity of the Site.

1.2.1.8 Evaluate and Document the Need for Treatability Studies (RI/FS Guidance Section 2.2.4)

If the Respondents or U.S. EPA identify remedial actions that involve treatment, the Respondents shall conduct treatability studies unless the Respondents satisfactorily demonstrate to U.S. EPA that such studies are not needed. When treatability studies are needed, the Respondents shall plan initial treatability testing activities (such as research and study design) to occur concurrently with Site characterization activities (see Task 1.3.1 and Task 5).

1.2.1.9 Geotechnical Investigation

The Respondents shall collect sufficient information in the RI to complete a design of a cap at the Site including slope stability analyses and soil physical properties. The geotechnical investigation shall be completed in accordance with the Municipal Landfill Guidance and shall also include data collection sufficient to support property reuse options in the FS.

1.2.2 *Refine and Document Preliminary Remedial Action Objectives and Alternatives and Begin Preliminary Identification of Potential ARARs (RI/FS Guidance Sections 2.2.3 and 2.2.5)*

Once the existing site information has been analyzed and the Respondents and U.S. EPA have developed an understanding of potential site risks, the Respondents shall review and, if necessary, refine the remedial action objectives that have been identified by U.S. EPA for each actually or potentially contaminated medium. The Respondents shall document the revised preliminary remedial action objectives in a Preliminary Remedial Action Objectives Technical Memorandum, subject to U.S. EPA approval. The Respondents shall submit the Preliminary Remedial Action Objectives Technical Memorandum within 30 days of the effective date of the AOC. The Respondents shall fully and satisfactorily address and incorporate U.S. EPA's comments on the Preliminary Remedial Action Objectives Technical Memorandum in the RI/FS Planning Documents (Task 1.3). The Respondents shall then identify a preliminary range of broadly defined potential remedial action alternatives and associated technologies relevant to the Site characteristics that are consistent with the Presumptive Remedy Guidances and the Municipal Landfill Guidance, as appropriate. The range of potential alternatives for matters not addressed by the Presumptive Remedy Guidance will encompass, where appropriate, alternatives in which treatment significantly reduces the toxicity, mobility, or volume of the waste; alternatives that involve containment with little or no treatment; and a no-action alternative.

1.2.3 *Begin Preliminary Identification of Potential ARARs (RI/FS Guidance Section 2.2.5)*

The Respondents shall conduct a preliminary identification of potential state and federal ARARs (chemical-specific, location-specific and action-specific) to assist in refining remedial action objectives and in the initial identification of remedial alternatives and ARARs associated with particular actions. ARAR identification will continue as Site conditions, contaminants, and remedial action alternatives are better defined.

1.3 RI/FS Planning Documents (RI/FS Guidance Section 2.3)

Within 60 calendar days of U.S. EPA's comments or approval of the Preliminary Remedial Action Objectives Technical Memorandum (Task 1.2.2), the Respondents shall submit draft RI/FS Planning Documents to U.S. EPA and Ohio EPA that address all data acquisition activities. The draft RI/FS Planning Documents shall include the draft RI/FS Work Plan (Task 1.3.1), a draft Sampling and Analysis Plan consisting of a draft Field Sampling Plan and a draft Quality Assurance Project Plan (Tasks 1.3.2, 1.3.2.1 and 1.3.2.2), and a draft Health and Safety Plan (Task 1.3.3). U.S. EPA will review and approve the RI/FS Planning Documents in consultation with Ohio EPA prior to the initiation of field activities. Following comment by U.S. EPA, the Respondents shall prepare final RI/FS Planning Documents which fully and satisfactorily address each of U.S. EPA's comments on the draft RI/FS Planning Documents. The final RI/FS Planning Documents shall include a response to comments explaining how each of U.S. EPA's comments on the draft RI/FS Planning Documents was addressed in the final RI/FS Planning Documents. The Respondents shall submit the final RI/FS Planning Documents to U.S. EPA and Ohio EPA within 21 calendar days of the receipt of U.S. EPA's comments on the draft RI/FS Planning Documents. The Respondents shall submit any subsequent revisions to any of the RI/FS Planning Documents, if required, to U.S. EPA and Ohio EPA within 21 calendar days of the receipt of U.S. EPA's comments on the final RI/FS Planning Documents. The Respondents shall not make any changes to the RI/FS Planning Documents that are not a direct result of addressing agency comments. The Respondents shall identify all revisions to the RI/FS Planning Documents in the response to comments. If the Respondents believe that, based on the scope of U.S. EPA comments on the RI/FS Planning documents, additional time is required to respond to the comments, then the Respondents shall notify U.S. EPA of the additional time that is required. U.S. EPA shall give the Respondents up to an additional 30 additional calendar days to respond based solely on the Respondents request. Additional time beyond a 30-day extension may be granted by U.S. EPA based on the supporting information supplied with the request.

Because of the unknown nature of the Site and the iterative nature of the RI/FS, additional data requirements and analyses may be identified throughout the process. The Respondents shall submit a technical memorandum documenting the need for additional data and identifying the DQOs whenever such requirements are identified. U.S. EPA may also require that the Respondents submit amendments to the RI/FS Work Plan

and/or any of the other RI/FS Planning Documents to address additional data collection activities. In any event, the Respondents are responsible for fulfilling the additional data and analysis needs identified by U.S. EPA consistent with the general scope and objectives of this RI/FS.

If the Respondents submit any deliverable required by the SOW in advance of the schedule specified in the SOW, the Respondents may use the number of days that any one document is submittede early (banked days) to extend the submittal schedule of a subsequent document. Respondents shall notify U.S. EPA periodically of the number of banked days that have been accumulated and when the Respondents intend to use them.

1.3.1 *RI/FS Work Plan* (RI/FS Guidance Section 2.3.1 and Appendix B)

The Respondents shall submit a RI/FS Work Plan that documents the Site background, data evaluations and project planning completed during the scoping process (see Tasks 1.1 and 1.2). The Work Plan shall include a summary of the information collected during Task 1.1, including, but not limited to: Site location; description; physiography; hydrology; geology; demographics; ecological, cultural and natural resource features; a summary of the Site history; and a description of previous investigations and responses conducted at the Site by local, state, federal, or private parties. The Site background section shall reiterate the information presented in the Respondents' Scoping Report (Appendix A to this SOW).

The RI/FS Work Plan shall include the preliminary objectives for the remedial action at the Site; preliminary potential state and federal ARARs (chemical-specific, location-specific and action-specific); a description of the Site management strategy developed by the Respondents and U.S. EPA during scoping; a preliminary identification of remedial alternatives; and data needs for characterizing the nature and extent of the contamination at the site, evaluating risks and developing and evaluating remedial alternatives consistent with the Presumptive Remedy Guidance and the Municipal Landfill Guidance as appropriate. The RI/FS Work Plan shall reflect coordination with treatability study requirements, if any (see Task 1.2.1.8 and Task 5). It shall also include a process for and manner of refining and/or identifying additional Federal and State ARARs, and for preparing the human health and ecological risk assessments and the feasibility study.

The RI/FS Work Plan shall include a detailed description of the tasks the Respondents shall perform, the information needed for each task, a detailed description of the information the Respondents shall produce during and at the conclusion of each task, and a description of the work products that the Respondents shall submit to U.S. EPA and Ohio EPA. This includes the deliverables set forth in this SOW; a schedule for each of the required activities consistent with the RI/FS Guidance and other relevant guidance; and a project management plan including a data management plan (e.g., requirements for project management systems and software, minimum data requirements, data format

and backup data management), monthly reports to U.S. EPA and Ohio EPA, and meetings and presentations to U.S. EPA and Ohio EPA at the conclusion of each major phase of the RI/FS. The Respondents shall refer to Appendix B of the RI/FS Guidance for a comprehensive description of the required contents of the RI/FS Work Plan.

1.3.2 *Sampling and Analysis Plan* (RI/FS Guidance Section 2.3.2)

The Respondents shall prepare a Sampling and Analysis Plan (SAP) to ensure that sample collection and analytical activities are conducted in accordance with technically acceptable protocols and that the data meet the Site-specific DQOs. The SAP provides a mechanism for planning field activities and consists of a Field Sampling Plan (FSP) (Task 1.3.2.1) and a Quality Assurance Project Plan (QAPP) (Task 1.3.2.2). The FSP and the QAPP may be submitted as separate documents.

All sampling and analyses performed shall conform to U.S. EPA direction, approval, and guidance regarding sampling, quality assurance/quality control (QA/QC), data validation, and chain of custody procedures. The Respondents shall ensure that the laboratory used to perform the analyses participates in a QA/QC program that complies with U.S. EPA guidance.

Upon request by U.S. EPA, the Respondents shall have such a laboratory analyze samples submitted by U.S. EPA for quality assurance monitoring. The Respondents shall provide U.S. EPA the QA/QC procedures followed by all sampling teams and laboratories performing data collection and/or analysis. The Respondents shall also ensure the provision of analytical tracking information consistent with OSWER Directive No. 9240.0-2B, *Extending the Tracking of Analytical Services to PRP-Lead Superfund Sites*.

Upon request by U.S. EPA, the Respondents shall allow U.S. EPA or its authorized representatives to take split and/or duplicate samples of any samples collected by the Respondents or their contractors or agents. The Respondents shall notify U.S. EPA not less than 10 business days in advance of any sample collection activity. U.S. EPA shall have the right to take any additional samples that it deems necessary.

1.3.2.1 Field Sampling Plan (RI/FS Guidance Section 2.3.2.3 and Appendix B)

For each investigation and data collection activity identified in Task 1.2.1 *(Identify Data Needs and Design a Data Collection Program*) and any additional data collection activities identified in Task 1.2 (*Project Planning*), the RI/FS Work Plan or during the course of the RI/FS, the Respondents shall submit a FSP that defines in detail the sampling and data-gathering methods that the Respondents shall use to collect the data. The FSP shall discuss how the specific tasks the Respondents shall perform shall meet the detailed Site-specific objectives of the RI/FS; the detailed objectives of each investigation (e.g., Tasks 1.2.1.1 to 1.2.1.8); and the DQOs.

For each investigation the FSP shall present a statement of the problems and the potential problems posed by the Site; discuss previous sampling locations, analytical results and other relevant information (e.g., visual observations, historical records, air photo analyses); discuss the detailed objectives of each investigation, including the DQOs; and discuss and explain in detail how the specific work and activities the Respondents shall perform as part of each investigation will meet the objectives of the investigation and be used in the remedial investigation, the human health and ecological risk assessments and the feasibility study.

For each investigation, the FSP shall include a detailed description of the sampling objectives; sample locations, depths and frequency; sampling equipment and procedures; field measurements, analyses and procedures; sample preservation and handling; the field notes that the Respondents shall collect; field quality assurance; planned analyses; standard operating procedures; and decontamination procedures. The FSP shall include step-by-step instructions and be written so that a field sampling team unfamiliar with the Site would be able to gather the samples and the required field information according to the approved protocols. The FSP shall explain and justify why specific equipment and sampling procedures were selected and how they are appropriate for the work being performed and the objectives of this investigation. The FSP shall also include one or more figures that show all previous sampling locations with notes for any significant findings including groundwater elevation contours and the planned RI sample locations on the same map. The FSP shall also include a schedule which identifies the timing for the initiation and completion of all tasks the Respondents shall complete as a part of the FSP.

1.3.2.2 Quality Assurance Project Plan (QAPP)

The Respondents shall prepare a Site-specific QAPP covering sample analysis and data handling for the samples and data collected during the RI. The Respondents shall prepare the QAPP in accordance with the *Region 5 Instructions on the Preparation of a Superfund Division Quality Assurance Project Plan Based on EPA QA/R-5* (Revision 0, June 2000); *EPA Requirements for Quality Assurance Project Plans (QA/R-5)* (EPA/240/B-01/003, March 2001); and *EPA Guidance for Quality Assurance Project Plans (QA/G-5)* (EPA/600/R-98/018, February 1998). The QAPP shall describe the project objectives and organization, functional activities, and quality assurance and quality control (QA/QC) protocols the Respondents shall use to achieve the desired DQOs. The DQOs shall at a minimum reflect use of analytic methods to identify contamination and remediate contamination consistent with the levels for remedial action objectives identified in the National Contingency Plan, 40 C.F.R. Part 300. In addition, the QAPP shall address sampling procedures, sample custody, analytical procedures, and data reduction, validation, reporting and personnel qualifications. The Respondents shall also ensure the provision of analytical tracking information consistent with U.S. EPA's Office of Solid Waste and Emergency Response (OSWER) Directive No. 9240.0-2B *Extending the Tracking of Analytical Services to PRP-Lead Superfund Sites.* Field

personnel shall be available for U.S. EPA QA/QC training and orientation where applicable.

The Respondents shall demonstrate, in advance, to U.S. EPA's satisfaction, that each laboratory they may use is qualified to conduct the proposed work. This includes the use of methods and analytical protocols for the chemicals of concern in the media of interest within detection and quantification limits consistent with both QA/QC procedures and the DQOs in the U.S. EPA-approved QAPP for the Site. The laboratory must have and must follow an approved QA program.

If the Respondents select a laboratory that is not in the Contract Laboratory Program (CLP), the laboratory must use methods consistent with the CLP methods that would be used at this Site for the purposes proposed and the QA/QC procedures approved by U.S. EPA. Each laboratory and contractor who performs work involving environmental data operation activities for the Respondents under this AOC shall submit a Quality Management Plan (QMP) to U.S. EPA and Ohio EPA for review and to U.S. EPA for approval. The contractors' QMPs shall provide information on how the contractor's management will plan, implement, and assess its Quality System that complies with ANSI/ASQC E4-1994, *Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs*. The Respondents shall prepare the QMPs according to *EPA Requirements for Quality Management Plans*, EPA QA/R-2, March 2001, or equivalent documentation. The Respondents may submit the QMPs as part of the QAPP or as separate documents. U.S. EPA may also require the Respondents to submit detailed information to demonstrate that a laboratory is qualified to conduct the work, including information on personnel qualifications, equipment and material specifications. The Respondents shall provide assurances that U.S. EPA and Ohio EPA have access to laboratory personnel, equipment and records for sample collection, transportation and analysis. Upon request by U.S. EPA, the Respondents shall allow U.S. EPA or its authorized representatives to take split and/or duplicate samples of any samples collected by Respondents or their contractors or agents.

The Respondents shall participate in a pre-QAPP meeting or conference call with U.S. EPA. The purpose of this meeting or conference call is to discuss the QAPP requirements and to obtain any clarification needed to prepare the QAPP.

1.3.3 *Health and Safety Plan* (RI/FS Guidance Section 2.3.3 and Appendix B)

The Respondents shall prepare a Health and Safety Plan that conforms to their health and safety program and complies with the Occupational Safety and Health Administration (OSHA) regulations and protocols outlined in Title 29 of the Code of Federal Regulations (CFR), Part 1910. The Health and Safety Plan shall include the 11 elements described in the RI/FS Guidance such as a health and safety risk analysis, a description of monitoring and personal protective equipment, medical monitoring, and Site control. U.S. EPA does

not "approve" the Respondent's Health and Safety Plan, but rather U.S. EPA reviews it to ensure that all the necessary elements are included, and that the plan provides for the protection of human health and the environment, and after that review provides comments as may be necessary and appropriate. The safety plan must, at a minimum, follow the U.S. EPA's guidance document *Standard Operating Safety Guides* (Publication 9285.1-03, PB92-963414, June 1992).

TASK 2: COMMUNITY RELATIONS

U.S. EPA has the responsibility of developing and implementing community relations activities for the Site. The critical community relations planning steps performed by U.S. EPA and Ohio EPA include conducting community interviews and developing a Community Relations Plan. Although implementing the Community Relations Plan is the responsibility of U.S. EPA, the Respondents may assist by providing information regarding the Site's history; participating in public meetings; assisting in preparing fact sheets for distribution to the general public; or conducting other activities approved by U.S. EPA. All PRP-conducted community relations activities shall be planned and developed in coordination with U.S. EPA.

TASK 3: SITE CHARACTERIZATION AND RISK ASSESSMENT (RI/FS Guidance Chapter 3)

This task includes conducting site characterization and investigation activities (Task 3.1); the baseline human health risk assessment (Task 3.2) and the baseline ecological risk assessment (Task 3.3).

3.1 Site Characterization

The Respondents shall conduct the site characterization activities according to the U.S. EPA-approved RI/FS Work Plan, FSP and QAPP, and shall include the investigations and data collection activities identified in Task 1.2.1 *(Identify Data Needs and Design a Data Collection Program)*, Task 1.2 (*Project Planning*); the RI/FS Work Plan; or during the course of the RI/FS. The Respondents shall document all field work and observations in detailed field logs and/or standard format information sheets (see Section 3.5.1 of the RI/FS Guidance for examples of the types of information that the Respondents must record). The Respondents must specify, in the RI Work Plan, the FSP and/or the QAPP, along with a description of the Respondents' sample management and tracking procedures, the methods of documentation and the types of information that the Respondents shall record. The Respondents shall coordinate field activities with U.S. EPA's Remedial Project Manager (RPM) at least 10 business days prior to any field mobilization and throughout the field activities.

The Respondents shall communicate the progress of the field activities to the RPM in the monthly progress reports (Task 8). The monthly progress reports shall summarize the

field activities conducted each month including, but not limited to, drilling and sample locations, depths and descriptions; boring logs; sample collection logs; field notes; problems encountered; solutions to problems; a description of any modifications to the procedures outlined in the RI/FS Work Plan, the FSP, the QAPP or the Health and Safety Plan with justifications for the modifications; a summary of all data received during the reporting period and the analytical results; and upcoming field activities. In addition, the Respondents shall provide the RPM or the entity designated by the RPM with all laboratory data within the monthly progress reports and in no event later than 90 days after samples are shipped for analysis.

Within 180 calendar days following U.S. EPA's approval of the RI/FS Work Plan, the FSP and QAPP (Tasks 1.3.1, 1.3.2.1 and 1.3.2.2), the Respondents shall submit a Site Characterization Technical Memorandum that addresses all of the Site and nearby areas. The Site Characterization Technical Memorandum shall be consistent with the AOC and this SOW. The Respondents shall address U.S. EPA's comments on the Site Characterization Technical Memorandum when the Respondents prepare the RI Report (Task 4). The Respondents shall complete a Site Characterization Technical Memorandum that addresses, but is not limited to, the elements listed below.

1. Introduction

   - Purpose of Report

   - Site Description and Background

     - Site Location and Physical Setting Including General Geology, Hydrology, Hydrogeology, Surrounding Land Use and Populations, Groundwater Use, Surface Water Bodies, Ecological Areas including Sensitive Ecosystems and Meteorology/Climatology
     - Past and Present Facility Operations/Site Usage and Disposal Practices, Including Waste Disposal/Operations Areas Based on Historical Air Photos
     - Previous Investigations and Results

   - Report Organization

2. Study Area Investigations, Procedures and Methodologies, Including a Detailed Description of All Field Activities Associated with Site Characterization and Any Deviations from Approved Planning Documents (i.e., Describe How the RI Was Conducted)

   - Detailed Sampling and Data Gathering Objectives; Data Gaps and Data Needs Identified During Project Scoping and Course of RI
   - Surface Features Inventory, Including Topographic Mapping, etc.
   - Surrounding Land Use and Population Inventories/Surveys

- Meteorology/Climate Data Collection
- Waste Delineation Activities
- Surface and Subsurface Soils Investigations
- Leachate Investigations
- Hydrogeologic Investigations and Groundwater Use Inventories
- Surface Water, and, Sediment (and Floodplain Investigations, if necessary)
- Landfill/Soil Gas and Air Investigations
- Ecological Investigations
- Treatability Studies (if completed)

3. Physical Characteristics of the Study Area, Analytical Results and Modeling

   - Surface Features (Natural and Manmade) and Topography
   - Surrounding Land Use and Populations
   - Meteorology/Climate
   - Geology, Contaminant Source Areas, Waste Characterizations, Surface and Subsurface Soils, Hot Spots, Leachate, Analytical Data
   - Hydrogeology, Groundwater Conditions, Analytical Data, Contaminant Trends
   - Surface Water Hydrology and Surface Water, Sediment (and Floodplain if necessary) Characterizations, Analytical Data
   - Landfill/Soil Gas and Air Characterization, Analytical Data
   - Ecological Characterization and Sensitive Ecosystems

4. Summary of the Nature and Extent of Contamination, Contaminant Fate and Transport and Modeling Results

   - Contaminant Source/Waste Areas, Surface and Subsurface Soil Contamination, and Leachate

     – Contaminant Concentrations; Quantity, Volume, Size and/or Magnitude of Contamination; Potential Routes of Migration; Physical and Chemical Attributes and Contaminant Persistence; Contaminant Fate and Transport Processes; Migration to Other Areas and Media; Modeling (if modeling is completed), Detected and Modeled Concentrations (if modeling is completed) in Other Areas and Media

   - Groundwater Contaminants

     – Leachate Data; Contaminant Concentrations; Quantity, Volume, Size and/or Magnitude of Contamination; Potential Routes of Migration; Physical and Chemical Attributes and Contaminant Persistence; Groundwater Use; Fate and Transport Processes; Migration to Other Areas and Media; Modeling (if modeling is completed); Detected and

Modeled Concentrations (if modeling is completed) in Other Areas and Media

- Surface Water and Sediments

  - Contaminants and Concentrations; Quantity, Volume, Size and/or Magnitude of Contamination; Potential Routes of Migration; Physical and Chemical Attributes and Contaminant Persistence; Contaminant Fate and Transport Processes; Migration to Other Areas and Media; Modeling (if modeling is completed); Detected and Modeled (if modeling is completed) Concentrations in Other Areas and Media

- Landfill/Soil Gas and Air

  - Contaminants and Concentrations; Quantity, Volume, Size and/or Magnitude of Contamination; Potential Routes of Migration; Physical and Chemical Attributes and Contaminant Persistence; Contaminant Fate and Transport; Buildings/Land Use; Migration to Other Areas and Media; Modeling (of modeling is completed); Detected and Modeled Concentrations (if modeling is completed) in Other Areas and Media

- Geotechnical Investigation

  - Soil Physical Properties; Slope Analyses; Bearing Capacity; and Cap Design Considerations.

5. Summary and Conclusions

   - Summary

     - Nature and Extent of Contamination
     - Fate and Transport

   - Conclusions

     - Data Limitations and Recommendations for Future Work

6. References

7. Tables and Figures

(at least one set of figures shall be no larger than 11" x 17")

8. Appendices

- Log Books
- Soil Boring Logs
- Test Pit/Trenching Logs
- Landfill/Soil Gas Probe Construction Diagrams
- Monitoring Well Construction Diagrams
- Sample Collection Logs
- Private and Public Well Records
- Analytical Data and Data Validation Reports
- Detailed Modeling Reports (if modeling is completed)

3.2 Human Health Risk Assessment

The human health risk assessment shall be consistent with the Presumptive Remedy Guidance and shall be streamlined for the following pathways:

1. direct contact with soil and/or debris
2. exposure to contaminated groundwater within the landfill area
3. Exposure to leachate
4. exposure to landfill gas

since these elements will be addressed by the presumptive remedy. The streamlining involves the comparison of RI data to generic risk-based or performance criteria.

The Respondents shall conduct a health risk assessment that focuses on current and potential future risks to persons coming into contact with Site-related hazardous substances or contaminants, as well as risks to nearby residential, recreational and industrial worker populations from exposure to hazardous substances or contaminants in groundwater, soils, sediments, surface water, landfill gas and soil vapors, air, and the ingestion of contaminated organisms in nearby impacted ecosystems (all outside of the area addressed by the presumptive remedy) . The human health risk assessment shall define central tendency and reasonable maximum estimates of exposure for current land use conditions and reasonable future land use conditions. It is understood that the Property owner has placed land use restrictions on the property. These land use restrictions shall form the basis of the future land use exposure scenarios in the RA. The human health risk assessment shall use data from the Site and nearby areas to identify the contaminants of concern (COCs), provide an estimate of how and to what extent human receptors might be exposed to these COCs currently and in the future (e.g., based on fate and transport modeling and/or changes in land or groundwater use), and provide an assessment of the health effects associated with these COCs. The human

health risk assessment shall project the potential risk of health problems occurring if no cleanup action is taken at the Site and/or nearby areas; identify areas and/or media where risks exceed a cancer risk or 1E-6 and/or a hazard index of 1; and establish preliminary remediation goals for the COCs (carcinogenic and non-carcinogenic).

The Respondents shall conduct the human health risk assessment in accordance with U.S. EPA guidance including, at a minimum: *Risk Assessment Guidance for Superfund (RAGS), Volume I - Human Health Evaluation Manual (Part A)*, Interim Final (EPA-540-1-89-002, OSWER Directive 9285.7-01A, December 1, 1989); and *Risk Assessment Guidance for Superfund (RAGS), Volume I - Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments)* Final (EPA 540-R-97-033, OSWER 9285.7-01D, December 2001). The Respondents shall present and submit the results of the human health risk assessment in a draft Human Health Risk Assessment Report sent to Ohio EPA and U.S. EPA for review with the draft RI Report (90 calendar days after receipt of U.S. EPA's comments on the Site Characterization Technical Memorandum - see Task 4). The Human Health Risk Assessment Report shall also include the information that U.S. EPA will need to prepare the relevant sections of the Record of Decision (ROD) for the Site [see Chapters 6 and 9 of U.S. EPA's *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Documents (*EPA 540-R-98-031, July 1999) for the information that is needed). The Human Health Risk Assessment Report may be submitted as a separate document from the RI Report, although the Respondents must summarize the results and the conclusions of the human health risk assessment in the RI Report. Following comment by U.S. EPA, the Respondents shall prepare a final Human Health Risk Assessment Report which fully and satisfactorily addresses each of U.S. EPA's comments on the draft Human Health Risk Assessment Report. The final Human Health Risk Assessment Report submittal shall include a response to comments explaining how each of U.S. EPA's comments on the draft Human Health Risk Assessment Report was addressed in the final Human Health Risk Assessment Report. The Respondents shall submit the final Human Health Risk Assessment Report to Ohio EPA for review and to U.S. EPA for review and approval within 21 30 calendar days of the receipt of U.S. EPA's comments on the draft Human Health Risk Assessment Report. If the Respondents believe that, based on the scope of U.S. EPA comments on the Human Health Risk Assessment, additional time is required to respond to the comments, then the Respondents shall notify U.S. EPA of the additional time that is required. U.S. EPA shall give the Respondents up to an additional 30 additional calendar days to respond based solely on the Respondents' request. Additional time beyond a 30-day extension may be granted by U.S. EPA based on the supporting information supplied with the request.

The Respondents shall submit any subsequent revisions to the Human Health Risk Assessment Report, if any are required, to Ohio EPA for review and to U.S. EPA for review and approval within 21 calendar days of the receipt of U.S. EPA's comments on the final Human Health Risk Assessment Report. The Respondents shall not make any

changes to the Human Health Risk Assessment Report that are not a direct result of addressing agency comments. The Respondents shall identify all revisions to the Human Health Risk Assessment Report in the response to comments.

3.3 Ecological Risk Assessment

The Respondents shall conduct an ecological risk assessment in accordance with U.S. EPA guidance including, at a minimum: *Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments* (EPA-540-R-97-006, June 1997, OSWER Directive 9285.7-25). The ecological risk assessment shall describe the data collection activities conducted as part of Task 1.2.1.7 and the information listed below. In addition, the ecological risk assessment shall evaluate both current and potential future risks to ecosystems. The Respondents shall present the results of the ecological risk assessment in a draft Ecological Risk Assessment Report and submit the results with the draft RI Report (90 calendar days after receipt of U.S. EPA's comments on the Site Characterization Technical Memorandum - see Task 4). The Ecological Risk Assessment Report shall also include the information that U.S. EPA will need to prepare the relevant sections of the Record of Decision (ROD) for the Site [see Chapters 6 and 9 of U.S. EPA's *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Documents* (EPA 540-R-98-031, July 1999) for the information that is needed]. The Ecological Risk Assessment Report may be submitted as a separate document from the RI Report, although the results and the conclusions of the ecological risk assessment shall be summarized in the RI Report. Following comment by U.S. EPA, the Respondents shall prepare a final Ecological Risk Assessment Report which fully and satisfactorily addresses each of U.S. EPA's comments on the draft Ecological Risk Assessment Report. The final Ecological Risk Assessment Report submittal shall include a response to comments explaining how each of U.S. EPA's comments on the draft Ecological Risk Assessment Report was addressed in the final Ecological Risk Assessment Report. The Respondents shall submit the final Ecological Risk Assessment Report to Ohio EPA for review and to U.S. EPA for review and approval within 21 calendar days of the receipt of U.S. EPA's comments on the draft Ecological Risk Assessment Report. If the Respondents believe that, based on the scope of U.S. EPA comments on the Ecological Risk Assessment, additional time is required to respond to the comments, then the Respondents shall notify U.S. EPA of the additional time that is required. U.S. EPA shall give the Respondents up to an additional 30 additional calendar days to respond based solely on the Respondents' request. Additional time beyond a 30-day extension may be granted by U.S. EPA based on the supporting information supplied with the request.

The Respondents shall submit any subsequent revisions to the Ecological Risk Assessment Report, if any are required, to Ohio EPA for review and to U.S. EPA for review and approval within 21 calendar days of the receipt of U.S. EPA's comments on the final Ecological Risk Assessment Report. The Respondents shall not make any

changes to the Ecological Risk Assessment Report that are not a direct result of addressing agency comments. All revisions to the Ecological Risk Assessment Report shall be identified in the response to comments. The Respondents shall submit draft and final Ecological Risk Assessment Reports that fully address, but are not limited to, the following elements:

- Project Scoping, Planning and Study Objectives
- Conceptual Model and Assessment Endpoints
- Chemicals of Concern, Sources of Data and the Analytical Procedures Used
- Stressor-Response and Exposure Profiles
- Risks to Assessment Endpoints, Including Risk Estimates and Adversity Evaluations
- Review and Summary of Major Areas of Uncertainty (As Well As the Direction) and the Approaches Used to Address Them
    - Degree of Scientific Consensus In Key Areas of Certainty
    - Major Data Gaps and Whether Gathering Additional Data Would Add Significantly to Overall Confidence in Assessment Results
    - Science Policy Judgements or Default Assumptions Used to Bridge Information Gaps and the Basis for these Assumptions
    - Elements of Quantitative Uncertainty Analysis Embedded in Risk Estimate

TASK 4: REMEDIAL INVESTIGATION (RI) REPORT

Within 90 calendar days following receipt of U.S. EPA's comments on the Site Characterization Technical Memorandum (Task 3.1), the Respondents shall submit a draft RI Report that addresses all of the Site and nearby areas. The RI Report shall either include or summarize the Human Health Risk Assessment Report and the Ecological Risk Assessment Report, and shall be consistent with the AOC and this SOW. The RI Report shall fully and satisfactorily address and incorporate U.S. EPA's comments on the Site Characterization Technical Memorandum. The RI Report submittal shall include a response to comments that details how each of U.S. EPA's comments on the Site Characterization Technical Memorandum was addressed in the RI Report. The Respondents shall submit a RI Report that addresses, but is not limited to, the elements listed below. In addition, the RI Report shall also include the information that U.S. EPA will need to prepare the Record of Decision (ROD) for the Site [see Chapters 6 and 9 of U.S. EPA's *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Documents* (EPA 540-R-98-031, July 1999) for the information that is needed]. Following comment by U.S. EPA, the Respondents shall prepare a final RI Report which fully and satisfactorily addresses each of U.S. EPA's comments on the draft RI Report. The final RI Report submittal shall include a response to comments explaining how each of U.S. EPA's comments on the draft RI Report was addressed in the final RI Report. The Respondents shall submit the final RI Report to Ohio EPA for review and to U.S. EPA for review and approval within 30 calendar days of the receipt of

U.S. EPA's comments on the draft RI Report. If the Respondents believe that, based on the scope of U.S. EPA comments on the RI Report, additional time is required to respond to the comments, then the Respondents shall notify the U.S. EPA of the additional time that is required. U.S. EPA shall give the Respondents up to an additional 30 additional calendar days to respond based solely on the Respondents' request. Additional time beyond the 30-day extension may be granted by U.S. EPA based on the supporting information supplied with the request.

The Respondents shall submit any subsequent revisions to the RI Report, if any are required, to Ohio EPA for review and to U.S. EPA for review and approval within 21 calendar days of the receipt of U.S. EPA's comments on the final RI Report. The Respondents shall not make any changes to the RI Report that are not a direct result of addressing agency comments. The Respondents shall identify all revisions to the RI Report in the response to comments. The draft and final RI Reports shall address, but are not limited to, the following elements:

1. Executive Summary

2. Introduction

   - Purpose of Report
   - Site Description and Background
   - Site Location and Physical Setting Including General Geology, Hydrology, Hydrogeology, Surrounding Land Use and Populations, Groundwater Use, Surface Water Bodies, Ecological Areas including Sensitive Ecosystems and Meteorology/Climatology
   - Past and Present Facility Operations/Site Usage and Disposal Practices, Including Waste Disposal/Operations Areas Based on Historical Air Photos
   - Previous Investigations and Results
   - Report Organization

3. Study Area Investigations, Procedures and Methodologies, Including a Detailed Description of All Field Activities Associated with Site Characterization and Any Deviations from Approved Planning Documents (i.e., Describe How the RI Was Conducted)

   - Detailed Sampling and Data Gathering Objectives; Data Gaps and Data Needs Identified During Project Scoping and Course of RI
   - Surface Features Inventory, Including Topographic Mapping, etc.
   - Surrounding Land Use and Population Inventories/Surveys
   - Meteorology/Climate Data Collection
   - Waste Delineation Activities
   - Surface and Subsurface Soils Investigations
   - Leachate Investigation

- Hydrogeologic Investigations and Groundwater Use Inventories
- Surface Water, and Sediment (and Floodplain, if completed) Investigations
- Landfill/Soil Gas and Air Investigations
- Ecological Investigations
- Treatability Studies (if completed)
- Geotechnical Investigation

4. Physical Characteristics of the Study Area, Analytical Results and Modeling

   - Surface Features (Natural and Manmade) and Topography
   - Surrounding Land Use and Populations
   - Meteorology/Climate
   - Geology, Contaminant Source Areas, Waste Characterizations, Surface and Subsurface Soils, Leachate, Analytical Data
   - Hydrogeology, Groundwater Conditions, Analytical Data, Contaminant Trends
   - Surface Water Hydrology and Surface Water, Sediment (and Floodplain, if completed) Characterizations, Analytical Data
   - Landfill/Soil Gas and Air Characterization, Analytical Data
   - Ecological Characterization and Sensitive Ecosystems
   - Summary of the Nature and Extent of Contamination, Contaminant Fate and Transport and Modeling Results (if completed)
   - Surface and Subsurface Soil

     – Contaminant Concentrations; Quantity, Volume, Size and/or Magnitude of Contamination; Potential Routes of Migration; Physical and Chemical Attributes and Contaminant Persistence; Contaminant Fate and Transport Processes; Migration to Other Areas and Media; Modeling (if modeling is completed), Detected and Modeled Concentrations (if modeling is completed) in Other Areas and Media

   - Groundwater Contaminants

     – Contaminant Concentrations; Quantity, Volume, Size and/or Magnitude of Contamination; Potential Routes of Migration; Physical and Chemical Attributes and Contaminant Persistence; Groundwater Use; Fate and Transport Processes; Migration to Other Areas and Media; Modeling (if modeling is completed); Detected and Modeled Concentrations (if modeling is completed) in Other Areas and Media

   - Surface Water and Sediments

     – Leachate data; Contaminants and Concentrations; Quantity, Volume, Size and/or Magnitude of Contamination; Potential Routes of

Migration; Physical and Chemical Attributes and Contaminant Persistence; Contaminant Fate and Transport Processes; Migration to Other Areas and Media; Modeling (if modeling is completed); Detected and Modeled Concentrations (if modeling is completed) in Other Areas and Media

- Landfill/Soil Gas and Air

  - Contaminants and Concentrations; Quantity, Volume, Size and/or Magnitude of Contamination; Potential Routes of Migration; Physical and Chemical Attributes and Contaminant Persistence; Contaminant Fate and Transport; Buildings/Land Use; Migration to Other Areas and Media; Modeling (if modeling is completed); Detected and Modeled Concentrations (if modeling is completed) in Other Areas and Media

6. Human Health Risk Assessment Summary

7. Ecological Risk Assessment Summary

8. Summary and Conclusions

   - Summary

     - Nature and Extent of Contamination
     - Fate and Transport
     - Risk Assessment

   - Conclusions

     - Data Limitations and Recommendations for Future Work
     - Recommended Remedial Action Objectives

9. References

10. Tables and Figures
    (at least one set of figures shall be no larger than 11" x 17")
11. Appendices

    - Log Books
    - Soil Boring Logs
    - Test Pit/Trenching Logs

- Landfill/Soil Gas Probe Construction Diagrams
- Monitoring Well Construction Diagrams
- Sample Collection Logs
- Private and Public Well Records
- Analytical Data and Data Validation Reports
- Detailed Modeling Reports (if modeling is completed)

TASK 5: TREATABILITY STUDIES (RI/FS Guidance Chapter 5)

Based on currently available information, it is not certain whether treatability studies will be required to assist in the detailed analysis of Site alternatives. If U.S. EPA or the Respondents determine that treatability testing is necessary, the Respondents shall conduct treatability studies as described in this Task 5 of this SOW. U.S. EPA and the Respondents do not believe that treatability testing will be required but the requirements for treatability studies have been included in the event that the Respondents or U.S. EPA identify the need for treatability studies during the completion of the RI. In addition, if applicable, the Respondents shall use the testing results and operating conditions in the detailed design of the selected remedial technology.

5.1 Determine Candidate Technologies and of the Need for Testing (RI/FS Guidance Sections 5.2 and 5.4)

The Respondents shall submit a Candidate Technologies and Testing Needs Technical Memorandum, subject to U.S. EPA and Ohio EPA review and U.S. EPA approval, that identifies candidate technologies for a treatability studies program. The Respondents shall submit the technical memorandum as early as project planning (Task 1) to avoid any potential delays in the FS. The list of candidate technologies shall cover the range of technologies required for alternatives analysis (Task 6.1). The Respondents shall determine and refine the specific data requirements for the testing program during Site characterization (Task 3) and the development and screening of remedial alternatives (Task 6).

5.1.1 *Conduct Literature Survey and Determine the Need for Treatability Testing* (RI/FS Guidance Section 5.2)

The Respondents shall conduct a literature survey to gather information on the performance, relative costs, applicability, removal efficiencies, operation and maintenance (O&M) requirements, and implementability of candidate technologies. If the Respondents have not sufficiently demonstrated practical candidate technologies, or if such technologies cannot be adequately evaluated for this Site on the basis of the available information, the Respondents shall conduct treatability testing. If U.S. EPA determines that treatability testing is necessary, and the Respondents cannot demonstrate to U.S. EPA's satisfaction that such testing is unnecessary, then the

Respondents shall submit a statement of work to U.S. EPA and Ohio EPA that outlines the steps and the data necessary to evaluate and initiate the treatability testing program.

5.1.2 *Evaluate Treatability Studies* (RI/FS Guidance Section 5.4)

Once a decision has been made to perform treatability studies, the Respondents shall propose and U.S. EPA will decide on the type of treatability testing to use (e.g., bench versus pilot). Because of the time required to design, fabricate, and install pilot scale equipment as well as perform testing for various operating conditions, the decision to perform pilot testing will be made as early in the process as possible to minimize potential delays of the FS. To assure that a treatability testing program is completed on time, and with accurate results, the Respondents shall either submit a separate Treatability Testing Work Plan and SAP, or amendments to the original RI/FS Work Plan, FSP, QAPP for U.S. EPA and Ohio EPA review and U.S. EPA approval.

5.2 Treatability Testing and Deliverables (RI/FS Guidance Sections 5.5, 5.6 and 5.8)

In addition to the Candidate Technologies and Testing Needs Technical Memorandum, if treatability testing is needed, the Respondents shall also submit a Treatability Study Work Plan, a Sampling and Analysis Plan, a Health and Safety Plan and a Treatability Evaluation Report.

5.2.1 *Treatability Testing Work Plan and Sampling and Analysis Plan* (SAP) (RI/FS Guidance Section 5.5)

The Respondents shall prepare a Treatability Testing Work Plan and a SAP, or amendments to the original RI/FS Work Plan, FSP and QAPP for U.S. EPA and Ohio EPA review and U.S. EPA approval that describes the Site background, the remedial technology(ies) to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety, and residual waste management. The Respondents shall document the DQOs for treatability testing as well. If pilot scale treatability testing is to be performed, the Treatability Study Work Plan shall describe pilot plant installation and start-up, pilot plant operation and maintenance procedures, operating conditions to be tested, a sampling plan to determine pilot plant performance, and a detailed health and safety plan. If testing is to be performed off-Site, the plans shall address all permitting requirements. The requirements of SAPs are outlined in Task 1.3.2 of this SOW.

5.2.2 *Treatability Study Health and Safety Plan* (RI/FS Guidance Section 5.5)

If the original Health and Safety Plan is not adequate for defining the activities to be performed during the treatability tests, the Respondents shall submit a separate or amended Health and Safety Plan. Task 1.3.3 of this SOW provides additional

information on the requirements of the Health and Safety Plan. U.S. EPA and Ohio EPA review, but do not "approve" the Treatability Study Health and Safety Plan.

5.2.3 *Treatability Study Evaluation Report* (RI/FS Guidance Section 5.6)

Following the completion of the treatability testing, the Respondents shall analyze and interpret the testing results in a technical report to U.S. EPA and Ohio EPA. Depending on the sequence of activities, this report may be a part of the Site Characterization Technical Memorandum (Task 3.1), the RI Report (Task 4) or submitted as a separate deliverable. The Treatability Study Evaluation Report shall evaluate each technology's effectiveness, implementability and cost, and actual results as compared with predicted results. The report shall also evaluate full scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

TASK 6: DEVELOPMENT AND SCREENING OF ALTERNATIVES (Technical Memorandum)

The Respondents shall develop and screen remedial alternatives to determine an appropriate range of response actions that encompass the presumptive remedy components that are deemed to be required based on the results of the RI. The presumptive remedy components may include:

- preventing direct contact with landfill contents;
- minimizing infiltration and leaching;
- collecting and treating leachate and/or groundwater from under the landfill; and
- controlling and treating (if necessary) landfill gas.

For the remedial components that are not part of the presumptive remedy and are potentially required based on the results of the risk assessments, the Respondents shall develop and screen remedial alternatives to determine an appropriate range of remedial options that the Respondents shall evaluate. This range of alternatives shall include, as appropriate, options in which treatment is used to reduce the toxicity, mobility, or volume of contaminants, but which vary in the types of treatment, the amount treated, and the manner in which long-term residuals or contaminants are managed; options involving containment with little or no treatment; options involving both treatment and containment; and a no-action alternative. The Respondents shall perform the following activities as a function of the development and screening of remedial alternatives. Potential Remedial Alternatives may be screened and developed in accordance with *Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites* (EPA/540/P-91/001, February 1991) and *Implementing Presumptive Remedies* (EPA 540-R-97-029, October 1997) (see sections for municipal landfills, contaminated groundwater and any other applicable sections).

If is noted that the Presumptive Remedy Guidance states, "(u)se of the presumptive remedy eliminates the need for the initial identification and screening of alternatives during the feasibility study ...." (Page 2). As a result, this SOW indicates that, for presumptive remedy components, the alternatives need to be described in the Alternatives Screening Technical Memorandum, but they are not evaluated until the FS is completed.

6.1 Develop and Screen Remedial Alternatives (RI/FS Guidance Section 4.2)

The Respondents shall begin to develop and evaluate a range of alternatives at a minimum ensure protection of human health and the environment and meet the remedial action objectives. The Respondents shall present and summarize the development and screening of the remedial alternatives in the Alternatives Screening Technical Memorandum (Task 6.2.2).

6.1.1 *Refine and Document Remedial Action Objectives* (RI/FS Guidance Section 4.2.1)

Based on the human health and ecological risk assessments, the Respondents shall review and if necessary modify the Site-specific remedial action objectives, specifically the preliminary remedial action objectives established by U.S. EPA prior to or during negotiations between U.S. EPA and the Respondents. The preliminary remedial action objectives for the South Dayton Dump and Landfill Site are listed in Task 1 of this SOW. The Respondents shall document the revised remedial action objectives in a Remedial Action Objectives Technical Memorandum (Task 6.2.1) for U.S. EPA and Ohio EPA review and for U.S. EPA approval. The modified remedial action objectives shall specify the constituents of concern and the media of interest; exposure pathways and receptors; and an acceptable contaminant level or range of levels (at particular locations for each exposure route).

6.1.2 *Develop General Response Actions* (RI/FS Guidance 4.2.2)

After U.S. EPA approves the modified remedial action objectives, the Respondents shall develop general response actions for each medium of interest beyond the scope of the presumptive remedy including containment, treatment, excavation, pumping, or other actions, singly or in combination, to satisfy the U.S. EPA-approved remedial action objectives.

This step shall be completed consistent with the Municipal Landfill Guidance but is not required for the presumptive remedy components.

6.1.3 *Identify Areas or Volumes of Media* (RI/FS Guidance Section 4.2.3)

The Respondents shall identify areas or volumes of media to which the general response actions may apply, taking into account requirements for protectiveness as identified in the remedial action objectives. The Respondents shall also take into account the chemical and physical characterization of the Site.

6.1.4 *Identify, Screen, and Document Remedial Technologies* (RI/FS Guidance Sections 4.2.4 and 4.2.5)

This step shall be completed consistent with the Municipal Landfill Guidance but is not required for the presumptive remedy components.

The Respondents shall identify and evaluate technologies applicable to each general response action beyond the scope of the presumptive remedy to eliminate those technologies that cannot be implemented at the Site. The Respondents shall refine applicable general response actions to specify remedial technology types. The Respondents shall identify technology process options for each of the technology types concurrently with the identification of such technology types or following the screening of considered technology types. The Respondents shall evaluate process options on the basis of effectiveness, implementability, and cost factors to select and retain one or, if necessary, more representative processes for each technology type. The Respondents shall summarize and include the technology types and process options in the Alternatives Screening Technical Memorandum. Whenever practicable, the alternatives shall also consider the CERCLA preference for treatment over conventional containment or land disposal approaches.

The preliminary list of alternatives to address contaminated soil, sediments, surface water, groundwater, and air contamination at the Site beyond the limits of the landfilled waste shall consist of, but is not limited to, treatment technologies, removal and off-site treatment/disposal, removal and on-site disposal, and in-place containment for soils, sediments, and wastes. See 40 CFR 300.430(e)(1)-(7). The Respondents shall specify the reasons for eliminating any alternatives.

6.1.5 *Assemble and Document Alternatives* (RI/FS Guidance Section 4.2.6)

The Respondents shall assemble the selected representative technologies into alternatives for each affected medium or operable unit, including the presumptive remedy components. Together, all of the alternatives shall represent a range of treatment and containment combinations that shall address either the Site or the operable unit as a whole. The Respondents shall prepare a summary of the assembled alternatives and their related action-specific ARARs for the Alternatives Screening Technical Memorandum. The Respondents shall specify the reasons for eliminating alternatives during the preliminary screening process.

This step shall be completed consistent with the Municipal Landfill Guidance but is not required for the presumptive remedy components.

6.1.6 *Refine Alternatives*

The Respondents shall refine the remedial alternatives to identify the volumes of contaminated media addressed by the proposed processes and size critical unit operations as necessary. The Respondents shall collect sufficient information for an adequate comparison of alternatives. The Respondents shall also modify the remedial action objectives for each chemical in each medium as necessary to incorporate any new human health and ecological risk assessment information presented in the Respondents' baseline human health and ecological risk assessment reports. Additionally, the Respondents shall update action-specific ARARs as the remedial alternatives are refined.

This step shall be completed consistent with the Municipal Landfill Guidance but is not required for the presumptive remedy components.

6.1.7 *Conduct and Document Screening Evaluation of Each Alternative* (RI/FS Guidance Section 4.3)

The Respondents may perform a final screening process based on short and long term aspects of effectiveness, implementability, and relative cost. Generally, this screening process is only necessary when there are many feasible alternatives available for a detailed analysis. If necessary, the Respondents shall conduct the screening of alternatives to assure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis. As appropriate, the screening shall preserve the range of treatment and containment alternatives that was initially developed. The range of remaining alternatives shall include options that use treatment technologies and permanent solutions to the maximum extent practicable. The Respondents shall prepare an Alternatives Screening Technical Memorandum that summarizes the results and reasoning employed in screening; arrays the alternatives that remain after screening; and identifies the action-specific ARARs for the alternatives that remain after screening (Task 6.2.2).

This step shall be completed consistent with the Municipal Landfill Guidance but is not required for the presumptive remedy components.

6.2 Alternatives Development and Screening Deliverables (RI/FS Guidance Section 4.5)

The Respondents shall prepare and submit two technical memoranda for this task.

6.2.1 *Remedial Action Objectives Technical Memorandum* (see Task 6.1.1)

The Respondents shall submit a Remedial Action Objectives Technical Memorandum (see Task 6.1.1) to Ohio EPA and U.S. EPA for review. The Respondents shall submit the Remedial Action Objectives Technical Memorandum at the same time as the Draft RI Report (90 days after receipt of U.S. EPA's comments on the Site Characterization Technical Memorandum - see Task 4). The Respondents shall address and incorporate U.S. EPA's comments on the Remedial Action Objectives Technical Memorandum in the Alternatives Screening Technical Memorandum (Task 6.2.2).

6.2.2 Alternatives Screening Technical Memorandum (see Tasks 6.1.1 to 6.1.7)

The Respondents shall submit an Alternatives Screening Technical Memorandum to Ohio EPA and U.S. EPA for review. The Alternatives Screening Technical Memorandum shall summarize the work performed during and the results of each of the above tasks (Task 6.1.1 to 6.1.7), and shall include an alternatives array summary. If required by U.S. EPA, the Respondents shall modify the alternatives array to assure that the array identifies a complete and appropriate range of viable alternatives to be considered in the detailed analysis. The Alternatives Screening Technical Memorandum shall document the methods, the rationale and the results of the alternatives screening process. The Alternatives Screening Technical Memorandum shall also document the alternatives to be evaluated in the FS for the presumptive remedy components. The Respondents shall address and incorporate U.S. EPA's comments on the Alternatives Screening Technical Memorandum in the Comparative Analysis of Alternatives Technical Memorandum (Task 7.1.2). The Respondents shall submit the Alternatives Screening Technical Memorandum within 30 calendar days after receipt of U.S. EPA's comments on the Remedial Action Objectives Technical Memorandum.

TASK 7: DETAILED ANALYSIS of ALTERNATIVES (FS REPORT) (RI/FS Guidance Chapter 6)

The Respondents shall conduct and present a detailed analysis of remedial alternatives to provide U.S. EPA with the information needed to select a Site remedy.

7.1 Detailed Analysis of Alternatives (RI/FS Guidance Section 6.2)

The Respondents shall conduct a detailed analysis of the remedial alternatives for the Site. The detailed analysis shall include an analysis of each remedial option against a set of nine evaluation criteria, and a comparative analysis of all options using the same nine criteria as a basis for comparison.

7.1.1 *Apply Nine Criteria and Document Analysis* (RI/FS Guidance Sections 6.2.1 to 6.2.4)

The Respondents shall apply the nine evaluation criteria to the assembled remedial alternatives to ensure that the selected remedial alternative will protect human health and the environment and meet remedial action objectives; will comply with, or include a waiver of, ARARs; will be cost-effective; will utilize permanent solutions and alternative treatment technologies, or resource recovery technologies, to the maximum extent practicable; and will address the statutory preference for treatment as a principal element. The evaluation criteria include: (1) overall protection of human health and the environment and how the alternative meets each of the remedial action objectives; (2) compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume; (5) short-term effectiveness; (6) implementability; (7) cost; (8) state (or support agency) acceptance; and (9) community acceptance. (Note: criteria 8 and 9 are considered after the RI/FS report has been released to the general public.) For each alternative the Respondents shall provide: (1) A description of the alternative that outlines the waste management strategy involved and identifies the key ARARs associated with each alternative, and (2) A discussion of the individual criterion assessment. If the Respondents do not have direct input on criteria (8) state (or support agency) acceptance and (9) community acceptance, U.S. EPA will address these criteria.

7.1.2 *Compare Alternatives Against Each Other and Document the Comparison of Alternatives* (RI/FS Guidance Sections 6.2.5 and 6.2.6)

The Respondents shall perform a comparative analysis between the remedial alternatives. That is, the Respondents shall compare each alternative against the other alternatives using the evaluation criteria as a basis of comparison. U.S. EPA will identify and select the preferred alternative. The Respondents shall prepare a Comparative Analysis of Alternatives Technical Memorandum which summarizes the results of the comparative analysis and fully and satisfactorily addresses and incorporates U.S. EPA's comments on the Alternatives Screening Technical Memorandum (Task 6.2.2). The Comparative Analysis of Alternatives Technical Memorandum submittal shall include a response to comments explaining how each of U.S. EPA's comments on the Alternatives Screening Technical Memorandum was addressed in the Comparative Analysis of Alternatives Technical Memorandum. The Respondents shall address and incorporate U.S. EPA's comments on the Comparative Analysis of Alternatives Technical Memorandum in the draft FS Report (Task 7.2). The FS Report submittal shall include a response to comments explaining how each of U.S. EPA's comments on the Comparative Analysis of Alternatives Technical Memorandum was addressed in the FS Report. The Respondents shall submit the Comparative Analysis of Alternatives Memorandum within 60 calendar days after receipt of U.S. EPA's comments on the Alternatives Screening Technical Memorandum.

7.2 Feasibility Study Report (RI/FS Guidance Section 6.5)

Within 60 days after receipt of U.S. EPA's comments on the Comparative Analysis of Alternatives Technical Memorandum (Task 7.1.2) the Respondents shall prepare and

submit a draft FS Report for U.S. EPA and Ohio EPA review. The FS Report shall be consistent with the AOC and this SOW and shall fully and satisfactorily address and incorporate U.S. EPA's comments on the Comparative Analysis of Alternatives Technical Memorandum. The FS Report submittal shall include a response to comments explaining how each of U.S. EPA's comments on the Comparative Analysis of Alternatives Technical Memorandum was addressed in the FS Report. The FS report shall summarize the development and screening of the remedial alternatives (Task 6) and present the detailed analysis of remedial alternatives (Task 7.1). In addition, the FS Report shall also include the information U.S. EPA will need to prepare relevant sections of the Record of Decision (ROD) for the Site [see Chapters 6 and 9 of U.S. EPA's *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents* (EPA 540-R-98-031, July 1999) for the information that is needed]. Following comment by U.S. EPA, the Respondents shall prepare a final FS Report which fully and satisfactorily addresses each of U.S. EPA's comments on the draft FS Report. The final FS Report submittal shall include a response to comments detailing how each of U.S. EPA's comments on the draft FS Report was addressed in the final FS Report. The Respondents shall submit the final FS Report to Ohio EPA for review and to U.S. EPA for review and approval within 30 calendar days of the receipt of U.S. EPA's comments on the draft FS Report. The Respondents shall submit any subsequent revisions to the FS Report, if any are required, to Ohio EPA for review and to U.S. EPA for review and approval within 15 calendar days of the receipt of U.S. EPA's comments on the final FS Report. The Respondents shall not make any changes to the FS Report that are not a direct result of addressing agency comments. The Respondents shall identify all revisions to the FS Report in the response to comments.

The FS Report, as ultimately adopted or amended by U.S. EPA provides the basis for conducting a remedial action at the Site and documents the development and analysis of remedial alternatives. The Respondents shall refer to Section 6 of the RI/FS Guidance for an outline of the FS Report format and the required FS Report contents.

TASK 8: PROGRESS REPORTS

The Respondents shall submit monthly written progress reports to U.S. EPA and Ohio EPA concerning actions undertaken pursuant to the AOC and this SOW, beginning 30 calendar days after the effective date of the AOC, until the termination of the AOC, unless otherwise directed in writing by the RPM. These reports shall include, but not be limited to, a description of all significant developments during the preceding period, including the specific work that was performed and any problems that were encountered; a copy and summary of the analytical data that was received during the reporting period; and the developments anticipated during the next reporting period, including a schedule of work to be performed, anticipated problems, and actual or planned resolutions of past or anticipated problems. The monthly progress reports will summarize the field activities conducted each month including, but not limited to drilling and sample locations, depths and descriptions; boring logs; sample collection logs; field notes; problems encountered;

solutions to problems; a description of any modifications to the procedures outlined in the RI/FS Work Plan, the FSP, QAPP or Health and Safety Plan, with justifications for the modifications; a summary of all data received during the reporting period and the analytical results; and upcoming field activities. In addition, the Respondents shall provide the RPM or the entity designated by the RPM with all laboratory data within the monthly progress reports and in no event later than 90 days after samples are shipped for analysis.